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Materials Sciences Corporation

March 24, 1994

MSC TPR 3410/CA07

Army Research Laboratory  
AMSRL-MA-S  
405 Arsenal Street  
Watertown, MA 02172-0001

RE: Item No. A002, Briefing/Review Meeting, Implementation of the Military Handbook 17 for Polymer Matrix Composites and Metal Matrix Composites, Contract No. DAAL01-93-C-4064, Technical Progress Report, MSC TPR 3410/CA07

Enclosed are two copies of our report on the Briefing/Review Meeting held on March 14, 1994. This is in accordance with CDRL A002.

If you have any questions or comments on the contents of this report, please let me know.

Sincerely,

Crystal H. Newton, Ph.D.  
Project Engineer

CHN/mj

Enclosure (2/0)  
DD250

cc: AMSRL-OP-PR-WT (1/0)  
DTIC-FDA (1/)  
Gary Hagnauer (1/0)

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Materials Sciences Corporation

BRIEFING/REVIEW MEETING  
IMPLEMENTATION OF THE MILITARY HANDBOOK 17  
FOR POLYMER MATRIX COMPOSITES AND  
METAL MATRIX COMPOSITES

Meeting Date: 14 March 1994

Minutes Submitted: 25 March 1994

Contract No. DAAL01-93-C-4064

Technical Progress Report

MSC TPR 3410/CA07

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Date of Determination: 9/14/93. Other requests should be referred to U.S. Army Research Laboratory,  
Attn: AMSRL-MA-S (Mr. Edward Clegg), 405 Arsenal Street, Watertown, MA 02172-0001.

Submitted By:

Crystal H. Newton  
Principal Investigator

Prepared For:

Department of the Army  
U.S. Army Research Laboratory  
Arsenal Street  
Watertown, MA 02172-0001

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**DAAL01-93-C-4064 Briefing**  
**ARL - Watertown**  
**14 March 1994**

1. **MMC Support** Support of the metal matrix composites effort, as the equivalent of a MIL-HDBK-17 working group, is included in the Secretariat contract. Preparation of a document for publication was not included in the revised proposal since this was not mentioned in the RFP.
2. **MMC Meeting at Park City** The draft outline of the metal matrix handbook was revised. A volume with three parts is planned. Volunteers will draft some of the sections and additional sections will be written by the MMCIAC. The goal is a draft handbook by the New Orleans meeting, sufficient to be assigned a military handbook number. In addition to draft handbook sections, test matrix information is under development. Buchanan at McDonald Douglas has a MMC database he is willing to contribute to the handbook. Action Item: Gary Hagnauer to send a copy of minutes from the Park City meeting and the revised outline to MSC.
3. **MMC at Monterey** Minutes will be published separate from MIL-17 minutes. Steve Johnson and Kevin O'Brien (NASA Langley) will not attend. John Nunes (ARL) will be there. MSC will focus on polymer matrix composites at this meeting. MMC will be treated as a working group with respect to amount of support. MMCIAC will present an update on progress on the MMC handbook draft. Everett Baker is putting together data. MSC may dedicate a person if work develops through Jerry Persh to accumulate and analyze old MMC data. Gary Hagnauer will chair the MMC sessions; a working group chair will be identified in the future. Action Item: Gary Hagnauer will prepare the agenda for the MMC sessions.
4. **Export-Controlled Data** Volume 4 will probably be Distribution X (U.S. only) or DoD/DoD contractors only (to be determined). A process of declassification will continue, possibly with a five year review.
5. **Proceedings** The proceedings from the Monterey meeting will be compiled by MSC and printed/distributed by ARL. Proceedings from the following meetings will be reconsidered as needed, based on the availability of the ARL print shop. Action Item: Preliminary minutes and information will be distributed via electronic mail.
6. **Secretariat Responsibilities for Meeting** Compile minutes from the working groups and intersociety forum. Monitor agenda items. Serve as a resource for information. Chair sessions as needed. Write general session minutes.
7. **Working Group Chairmen Responsibilities** The authority and responsibilities of the working group chairmen will be identified at the working group chairmen's meeting. WGC are responsible for the minutes in their sessions. A format will be established for agenda items and WGC will establish their own agenda items. The format will include the title, a brief description and a schedule, where feasible.

8. **Vought Data** Data were submitted by Vought to Joe Brennan who prepared STAT17 files. These data on diskette were given to MSC. Vought provided no distribution statement. Joe told John Pimm that he plans to use a Distribution X statement until the data have been considered by the Export Control Review Board. Action Item: MSC will try to have these data analyzed by the Monterey meeting. The errors in conditioning and other codes will be identified.
9. **STAT17** Dan Shepherd (ARL, currently U.Del) is interested in working on STAT17 in terms of availability on more platforms and data analysis without header information. He has discussed the code with Mark Vangel. STAT17 has example problems which correspond with Volume 1, Section 8.7. The latest version has an option for a quick analysis of data without the header. The future direction of STAT17 was discussed, including other platforms such as Macintosh, a WINDOWS version or other screen format, and being combined with REGTOL. Other questions and comments regarding the code were raised. Action items: Crystal Newton will 1) Identify differences among versions 3.0, 3.1, and 3.1A; 2) Check on printing formats for B-values; 3) Check fluctuations in A-values between different versions; and 4) Send a copy of STAT17 to Gail Warner. Joe Brennan will provide MSC with a list of STAT17 problems, comments, etc. STAT17 will be discussed at the Working Group Chairmen's meeting regarding the use of REGTOL and future directions for the code.
10. **STAT17 distribution** Joe Brennan contacted Rick Rodemer at Naval Pubs regarding the distribution of STAT17 disks. This does not appear to be a feasible option. DTIC can distribute disks at cost.
11. **Handbook distribution** DTIC can distribute the handbook on diskette at cost. The current possibility would be WordPerfect™ on PC diskettes. Electronic book files would be a possibility if the conversion is provided. CD-ROM capabilities are under development. CINDAS is another possibility for handbook distribution in electronic format or paper copy. (The handbook is available from a couple commercial sources.) There is an AF precedent for paper copy distribution through HTMIAC. The use of electronic book format rather than WordPerfect was recommended.
12. **Editing** - The types of editing that should be done by the Secretariat and those types of editing that should be done by someone else were discussed. The example used was an edited version of the handbook to be distributed, possibly by CINDAS. Additional cross-references and indexing may be added, and so on.
13. **Data review procedure** The data review procedure as documented in the summary of the summary of the executive session was discussed. A preliminary review of documentation early in the process was recommended to avoid wasting effort on data sets which had insufficient documentation (e.g., no test method identification).
14. **Data source information packet** A information packet to distribute to existing and potential data sources was discussed. The possibility of an appendix containing past data requirements was mentioned. Action item: Crystal Newton and Bob Pasternak to coordinate such an information packet. MSC will provide more frequent feedback to data sources.

15. **Additional properties** The requirements and other information necessary to include other properties in the handbook will be discussed during the working group chairmen's meeting. One example is hypervelocity impact data from ARL. **Action items:** Add topic to Working Group Chairmen's agenda. Crystal Newton to distribute property list to working group chairmen by the Monterey meeting.
16. **Harmonization/Intersociety Forum** **Action items:** Gary Hagnauer will try to schedule the presentation on the UK handbook for the fall meeting. Crystal Newton will 1) talk to Ed Clegg regarding SAE information; 2) contact Mark Freisthler for a presentation on Boeing's programs during the Intersociety forum, and contact representatives from other organizations for updates on recent activities.
17. **Data to HTMIAC** As noted in the executive summary in the proceedings from Alexandria, data will be sent to the HTMIAC. These will be approved statistical parameters data as they appear in the handbook. **Action items:** Crystal Newton will contact HTMIAC regarding format, etc.
18. **Secretariat tasking** All tasking for the Secretariat will go through Ed Clegg. **Action item:** Add to working group chairmen's agenda.
19. **ISO-compatible document** The development of an international version of the handbook was discussed. The preparation and publication of an international version was not included in the revised proposal since this was not mentioned in the RFP. MSC does use a version of STAT17 that will analyze SI equivalents of in-lb data.
20. **Working Group Chairmen's Agenda** The agenda for the working group chairmen's meeting was discussed. The following items were included:
  - Statement of secretariat function [GH/EC]
  - Agenda item formats and the process for generating agenda items and designating responsibility for them [GH]
  - STAT17 status and future directions [CN]
  - Data acquisition/documentation/review - Data source information packet [GH (intro)/ CN (discussion)/ special task to Data Review working group]
  - Review user's guide
  - Major topics and reorganization of the handbook [GH]
  - Statement of working group chairmen's authority and responsibility [GH/JS]
  - Major barriers [GH]
  - Scope - not C/Ep for aircraft
  - Quality
  - Status - working group closure, bar charts of progress [GH]**Action items:** Gary Hagnauer will 1) fax agenda to working group chairmen; and 2) take care of minutes from the executive session. Crystal Newton will prepare bar charts of handbook progress.
21. **Awards** The possibility of awards was discussed. Letters of appreciation to management, with certificates to MIL-HDBK-17 participants were preferred. **Action items:** Ed Clegg to handle.

- 22. International participation** Approximately five international participants will attend.
- 23. Adjournment** The meeting was adjourned at approximately 15:30.

**Attendees:**

Joe Brennan, ARL (am)  
Ed Clegg, ARL  
Gary Hagnauer, ARL  
Bob Pasternak, ARL (am)  
Walt Rosen, MSC  
Crystal Newton, MSC